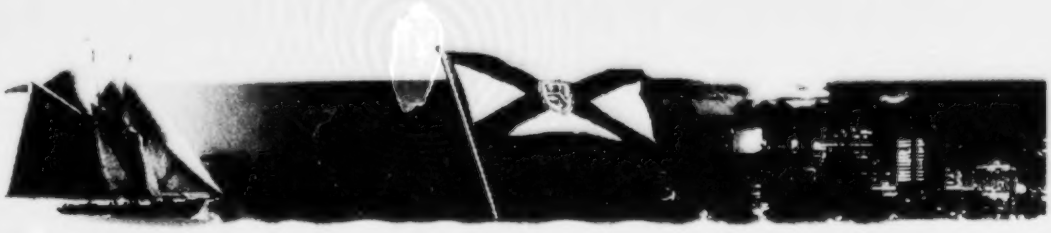

1999
NOVA SCOTIA ENVIRONMENTAL EMPLOYMENT REPORT

Nova Scotia Department of the Environment
Environmental Industries and Technologies Division

Honourable Michael Baker, Q.C.
Acting Minister

Report Period: Jan 01/99 to Dec. 31/99

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Acknowledgements

The Nova Scotia Department of the Environment (NSDOE) acknowledges the valuable assistance provided by all those who participated in the survey that led to the production of this report. Their time and assistance is greatly appreciated.

The report itself was compiled by staff within the Environmental Industries and Technologies Division of the Nova Scotia Department of the Environment.

While every effort has been made in this report to include all companies in the environmental sector, some errors or omissions may remain. Any information on new or existing companies in this sector would be gratefully received and included in future editions of the report.

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Summary

The environmental industry today has become a major force of economic growth and environmental renewal in Nova Scotia. As indicated by this report, Nova Scotia realized a job growth rate of 11.6% in 1999 in the environmental sector. According to Statistics Canada, Nova Scotia's growth was more than twice the national average.

The Nova Scotia environmental industries and technologies sector is comprised of service, manufacturing, government, academia, and non-government organizations. This sector employed approximately 4200 people in 1994. This number was at best an estimate and offered little guidance in terms of past trends or future directions.

These latest and most complete survey results indicate that in 1999, the equivalent of 8,209 Nova Scotians were employed full time in one of the province's most economically dynamic sectors. Much of the job growth was driven by the urgent need of municipalities for modern solid waste as well as water and wastewater treatment. The expansion of the solid waste/resource sector has been propelled, in large part, by the province's comprehensive Solid Waste/Resource Management Strategy. During 1999, over 2400 people were employed in solid waste management.

Nova Scotia has benefited from vision and partnership between the private and public sectors. Relative to many areas of the economy, this cooperation has led to a dramatic growth in the environmental industries and technologies sector. Much growth has been evident in manufacturing and service areas of the private sector. As of December 31,1999, the private sector accounted for 5,897 environment related jobs, up from 2500 jobs in 1994. This represents a 135% increase in private sector employment in just five years.

Encouraging, as well, is the projected level of growth for the year 2000. Nova Scotia environmental entrepreneurs believe they will add more than 400 people to their payrolls in 2000.

Employment in the public sector has largely remained static. This area is expected to see reductions in the near future.

Introduction

Today, sustainable economic development is a strategic goal of the Nova Scotia Department of the Environment (NSDOE). Environmental, as well as economic progress, can be realized through an innovative and strong private sector. It is understood that facilitating the commercialization of new, affordable technologies ultimately leads to a cleaner environment.

There is global recognition that solutions to environmental problems offer many benefits. This is acknowledged by the provincial government's inclusion of Section 156 in the Environmental Act of 1995. This section designates the Department of the Environment as the lead agency of government to promote the development and use of sustainable environmental industries, innovations, and technologies.

Any successful operation must know its market. That is why NSDOE has conducted a thorough review of Nova Scotia's environmental sector for the third year in a row. In this way, it can be determined how many jobs exist, identify trends and develop realistic prcjections for future growth. This report focuses primarily on overall employment in the environmental sector. Included is a look at employment levels by sub-sector.

The benefits that flow from the growth in the environmental industries and technologies sector are environmental, economic, and social. In Nova Scotia, fostering the development of innovative technologies and services creates more readily available and cost-effective options for environmental protection and enhancement. Municipalities, in particular, have benefited from introduction of affordable water treatment technology.

Encouraging the growth and exports of environmental technologies, products and services from Nova Scotia has already begun to yield many economic opportunities. The manufacturing and export of environmental products and services for global export has, and will, result in job creation and increased economic wealth throughout the province.

This export activity also helps to maintain an innovative private sector within the province. This innovation will be required to properly protect and enhance our local environment in the future.

Methodology

Except as indicated below, this report is based solely on telephone interviews. Organizations that could not be reached were not included. All results are those provided directly by companies, government, academia and NGO's.

Each company was contacted by phone and asked the following questions:

a) How many people are employed full time in environmental related services within your organization?

b) What would be the estimated environmental employment 12 months from now?

The employment numbers shown in the survey represent full time equivalents. For the purpose of this survey, two part time jobs are equated to one full time position.

Jobs were considered to be 'environmental' if they pertained to remediation, pollution control/ abatement technologies or services. Also included was employment in pollution prevention and ecologically sustainable technologies. A full listing of jobs included in this survey appears in **Appendix A**.

Well drillers, well diggers, well pump installers, pest control companies, underground tank installers and scrap metal dealers are all licenced by NSDOE. From the number of licenced companies, estimates have been made of levels of employment and the percentage of time employees spend in environmentally related work. These are the only numbers not based on actual phone interviews.

Results

Sections 1 and 2 examine the results generated by the survey. In order to get a better understanding of the industry, the following tables and figures have been provided with a summary of the results.

Table 1: **Summary of employment in the environmental sector (1997-2000)**

Figure 1: **Employment by sector (1999)**

Figure 2: **Employment in the manufacturing and service sub-sector (1999)**

SECTION 1 Summary of employment in the environment sector

This section provides a summary of the number of employees from the various sectors: service, manufacturing, federal government, provincial government, municipal government, academia and non-government-organizations (NGO's). See **Table 1** for employment levels from 1997 through 1999. Nova Scotia enjoyed an 11.6% increase in job growth in the environmental sector in 1999. A company-based projection of expected employment levels is included for 2000.

The private sector (service and manufacturing) consists of 430 enterprises. In the service sector, 342 enterprises were identified in the survey while in manufacturing 88 firms were identified. In 1999 the number of employees in the private sector increased by 10.9% indicating strong growth in the manufacturing and service areas. Another positive indicator of growth is an emerging manufacturing sector. This sector has contributed an additional 579 jobs to the economy in 1999. For an employment percentage breakdown of the environment sectors, refer to **Figure 1**.

Table 1: Summary of Employment in the Environmental Sector (1997-2000)

SECTOR	Employment (1997)	Employment (1998)	Employment (1999)	Projected Employment (2000)	Rate of Change (1998 v 1999)
Service	3,636.0	3,926.0	4,259.5	4,582.5	8.5%
Manufacturing	1,292.0	1,392.0	1,638.0	1,721.0	17.7%
Municipal Gov.	467.0	701.0	807.0	810.0	15.1%
Provincial Gov.	0.0*	0.0*	743.0	742.0	n/a
Federal Gov.	1,069.0	1,069.0	472.0	472.0	n/a
Academia	144.0	143.0	152.0	152.0	6.3%
NGO	45.0	124.0	138.0	140.0	11.3%
Total	**6,653.0**	**7,355.0**	**8,209.5**	**8,619.5**	**11.6%**

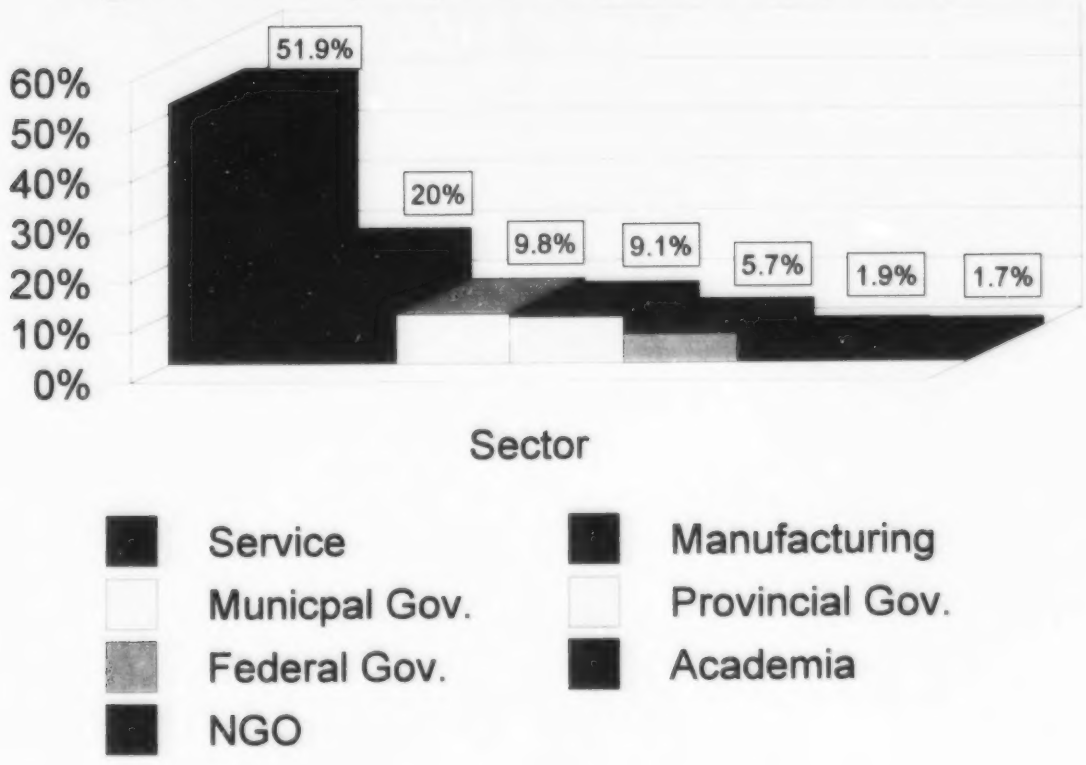
Notes:

* In the 1997 and 1998 reports, employment levels in the provincial and federal governments were combined. In this 1999 report, individual numbers are presented.

All data originated from a telephone survey conducted by NSDOE except as outlined in the methodology.

The formula for the rate of change column = (1999-1998)/1998*100

Figure 1: Employment by Sector (1999)



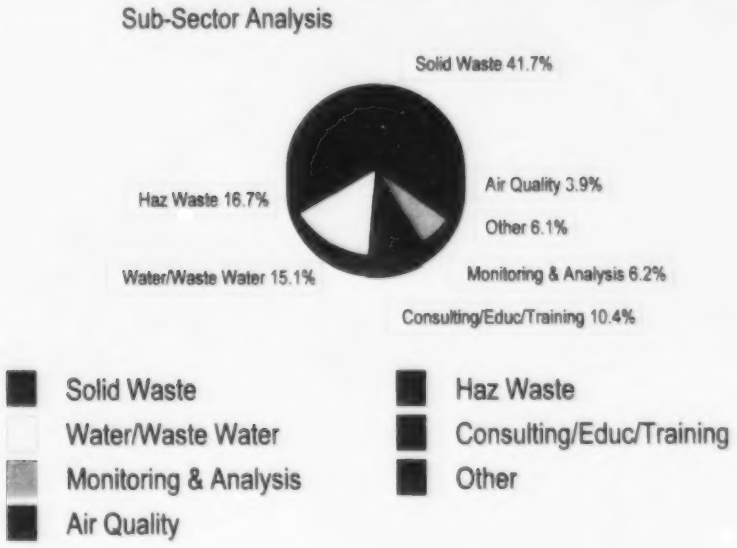
Notes:

The total number of private sector jobs for manufacturing and service sector in the environmental industry sector in 1999 was 5,897.

SECTION 2: Employment in the Manufacturing and Service Sectors

Together, the manufacturing and service sectors constitute the private sector. **Figure 2** shows the relative size, by employment percentage, of several sub-sectors within the private sector. The sub-sectors shown in Figure 2 are defined in **Appendix A**.

Figure 2: Employment in the Manufacturing & Service Sectors



Notes:

It is important to note that some companies may have worked in several sub-sectors. In **Figure 2**, companies were classified in one primary area of focus, for example, AQ, W & WW, etc.. A company might be involved in a number areas of such as soil remediation and wastewater treatment; it was included in only one or the other.

Future

New environmental technologies are often developed by small and medium size enterprises. These technologies must overcome many barriers before entering the marketplace. As these firms struggle to commercialize their technologies, they are confronted with a host of regulatory issues, the need for technical validation and the challenge of making initial sales. All this must be accomplished before firms can contemplate exporting.

The real potential for growth lies in exporting Nova Scotian environmental technology to the global market.

To provide for private sector innovation to protect the environment, to maintain existing employment levels and to encourage growth in the environmental sector, attention must be focussed on ensuring:

- ✔ independent technical validation of technologies seeking commercialization
- ✔ provision of technical and business advise to entrepreneurs
- ✔ identification of pilot and demonstration projects
- ✔ ongoing access to national and international market opportunities

The Nova Scotia Department of the Environment (NSDOE), through the Environmental Industries and Technologies Division (EIT), has been able to help emerging technologies overcome many obstacles to commercialization. Technical evaluation of new products and services have been undertaken. Facilitation of pilot and demonstration projects has also helped to propel new businesses into the commercial sphere. Timely technical advice has also allowed private firms to take advantage of opportunities.

EIT works closely with the Nova Scotia Environmental Industry Association (NSEIA) to develop opportunities in export markets. The benefits of pursuing export strategies can be demonstrated by the experience of some successful Nova Scotian companies. For example Nova Scotia companies have been active in providing environmental solutions in the Canadian, Caribbean, western Europe, Asian and New England markets.

APPENDIX A

Below is a list of definitions for each of the sub-sectors identified in Figure 2. Together they comprise the private sector(manufacturing and service).

1) *Air Quality Management*

- air pollution control products/services
- air handling
- calibration
- chemicals
- dust collection systems
- electrostatic precipitators
- filter and filter media
- fume extractors and extractors
- gas absorption and absorption systems
- measuring and monitoring products and services
- scrubbers
- air quality assessment
- indoor air quality

2) *Consulting Services/ Education/Training*

- environmental risk/assessment, impact studies, design and audits
- engineering consulting/project management
- sustainable development
- emergency response training
- industry (OH and S) and chemical safety training
-

3) *Hazardous Waste/Dangerous Goods (HW/ DG)*

- hazardous waste/dangerous goods solid and liquid
- recovery/collection/remediation (asbestos, PCB's, CFC, heavy metal hydrocarbons etc.) related equipment
- handling, collection, transport and transfer of HW/DG
- HW/DG handling equipment
- oil spill clean-up equipment and related services

4) Solid Waste

- solid waste handling, collection, transport, and disposal
- operation of recycling plants (material recovery facilities) and the sorting, baling of recyclables
- compost
- scrap metal/salvage yards and construction and demolition debris disposal and recycling sites
- products produced from recycled material and/or diverted waste

5) Water and Wastewater (W &WW)

- sewage treatment systems and wastewater reuse systems
- water and wastewater system assessment and design consulting
- WW & W related products and equipment

6) Environmental Monitoring and Analysis

- monitoring of marine activities
- aquatic toxicology
- lab analysis of soils, water and air
- monitoring of various industrial sites
- measuring and monitoring, sampling, process and control, data acquisition

7) Other

- software applications
- renewable energy production and related technologies
- energy efficient building systems
- legal services (environmental)
- marketing and business service
- environmental products
- oil and gas industry